

IMMOBILIZATION OF ASPERGILLUS NIGER ATCC 9642 ON ALGINATE BEADS AND INVESTIGATION OF ITS USE FOR DECOLORISATION OF SOME TEXTILE DYES AND OLIVE MILL WASTE.

Murat UYGUN

SUMMARY

In this work the optimal conditions for the immobilization of *A. niger* ATCC 9642 on alginate beads were determined. Optimum alginate concentration was found to be % 3 (w/v). Optimum glucose concentration of growth medium was found % 3 (w/v). 0 minute and 6,75 were optimum curing time and pH, respectively. Optimum spor/alginate concentration ratio was 1/6 (v/v).

Extracellular enzymes produced by immobilized *A. niger* ATCC 9642 were investigated. Out of the four enzymes (lipase, amilase, protease and catalase) tested, lipase was the only enzyme present with low activity.

Decolorization capacity of free and immobilized *A. niger* ATCC 9642 against ES Blue 4BL and ES Red BWS dyes was investigated. Decolorization capacity of free and immobilized *A. niger* ATCC 9642 against ES Blue 4BL were % 89,6 and % 94,7, respectively. Furthermore, decolorization capacity of free and immobilized *A. niger* ATCC 9642 against ES Red BWS were % 94,1 and % 83,9 (for 75 mg/L dye solution).

Immobilized fungus decolorized blue and green effluents obtained from a textile factory by % 17 and % 30, respectively. No decolorization capacity against olive oil mill waste was measured.

SEM images of free and immobilized fungus were compared and differences between morphologies were detected. Nevertheless, it is concluded that differentiation of morphologies do not effect the decolorization capacity.